

# Bungee Jumping Activity

Watch the video showing the bungee jumper. You will probably need to watch it several times as you work to develop a graph of the bungee jumper’s vertical distance from the top of the bridge (start) as a function of time. The following questions are designed to promote your thinking about your thinking concerning this situation.

1. On your whiteboard, create a graph of the bungee jumper’s distance from the top of the bridge as a function of elapsed time.

2. This graph is to appear as part of an article or report and you are given the task of writing the caption for this graph. Write a concise caption that communicates the information that the graph provides.

3. Choose a particular point on the graph. Describe the meaning of this point.

4. How would a student interpret the graph you created? What would they say?

5. Think about your thinking as you worked to create the graph in this situation. What strategies were helpful? How could you prepare students to successfully create a graph of this situation? The strategy, “I will show them how to do it and then have them practice over and over again” is not a valid strategy.

6. What issues or misconceptions need to be addressed in preparing students to create a graph such as the graph from this situation?

7. A student indicates that the graph doesn’t make sense because the graph “goes up” when the bungee jumper “goes down”. How are students thinking if they make such a comment? What might you say or do to help students with this issue?

The Bungee Jumper Situation – Teacher Notes

**Materials**

We [use a video of bungee jumper leaping from a bridge.](http://www.youtube.com/watch?v=aBavmypWXR4)

**Item Analysis**

1. On your whiteboard, create a graph of the bungee jumper’s distance from the top of the bridge versus elapsed time.

*The quantities being tracked often cause a perturbation in students’ thinking. Since we are tracking distance from the top of the bridge, that distance increases when the bungee jumper is traveling downward. The distance decreases when the bungee jumper is traveling back up toward the bridge. That is, students will have trouble since, “as the jumper goes down, the graph goes ‘up’ and when the jumper goes up, the graph goes ‘down’”.*

2. This graph is to appear as part of an article or report and you are given the task of writing the caption for this graph. Write a concise caption that communicates the information that the graph provides.

*Participants will be forced to describe the quantities and how they covary. They may tend to features of the graph such as how the graph increases, concavity, rate of change. They may also choose specific points on the graph and explain what they mean in the context of the situation.*

3. Choose a particular point on the graph. Describe the meaning of this point.

*If this hasn’t come up naturally in #2, the issue is explicitly brought up here.*

4. How would a student interpret the graph you created? What would they say?

*We want to force teachers to think about student thinking.*

5. Think about your thinking as you worked to create the graph in this situation. What strategies were helpful? How could you prepare students to successfully create a graph of this situation? The strategy, “I will show them how to do it and then have them practice over and over again” is not a valid strategy.

*Continuing the theme of thinking about student thinking, we want teachers to try to think about how students might be helped in thinking about graphing dynamic situations. Out of such a discussion, the Coordinating Quantities Tool (finger tool) may emerge as a strategy/tool for developing covariational reasoning.*

6. What issues or misconceptions need to be addressed in preparing students to create a graph such as the graph from this situation?

*Here, we continue the theme of thinking about student thinking.*

7. A student indicates that the graph doesn’t make sense because the graph “goes up” when the bungee jumper “goes down”. How are students thinking if they make such a comment? What might you say or do to help students with this issue?

*Here, we continue the theme of thinking about student thinking.*